Caustic Soda (Sodium Hydroxide) MSDS

1. Product Name and Identification

Product Name: Caustic Soda (Sodium Hydroxide)
CAS Number: 1310-73-2
Synonyms: Lye, Sodium Hydrate
Chemical Formula: NaOH
Molecular Weight: 40.00 g/mol
Manufacturer/Supplier Name: [Enter manufacturer/supplier details]
Emergency Contact Number: [Insert emergency contact details]

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2. Composition/Ingredients

Chemical Name: Sodium Hydroxide
CAS Number: 1310-73-2
EC Number: 215-185-5
Concentration: 98–100%

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3. Hazards Identification

Classification:

- Skin Corrosion (Category 1A)
- Serious Eye Damage (Category 1)
- Acute Toxicity - Oral (Category 4)

Label Elements:

- **Pictograms:** ![Corrosion]
- **Signal Word:** Danger
- **Hazard Statements:**
  - H290: May be corrosive to metals.
  - H314: Causes severe skin burns and eye damage.
  - H302: Harmful if swallowed.

Precautionary Statements:

- P260: Do not breathe dust or mist.
- P280: Wear protective gloves, protective clothing, and eye protection.

- P301+P330+P331: IF SWALLOWED, rinse mouth. Do NOT induce vomiting.
- P303+P361+P353: IF ON SKIN (or hair), remove immediately all contaminated clothing. Rinse skin with water.
- P305+P351+P338: IF IN EYES, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

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4. First Aid Measures

General Advice:

- Get medical assistance immediately for all types of exposure.

If Inhaled:

- Remove to fresh air and ensure unobstructed breathing. Seek medical attention if symptoms arise.

If on Skin:

- Wash thoroughly with water for at least 15 minutes. Remove contaminated clothing. Seek immediate medical attention for burns or persistent irritation.

If in Eyes:

- Rinse cautiously with water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.

If Swallowed:

- Rinse mouth with water. Do NOT induce vomiting. Seek emergency medical assistance immediately.

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5. Handling and Storage

Handling:

- Avoid generation of dust and direct contact with skin, eyes, or clothing. Provide proper ventilation to minimize exposure. Use protective equipment as necessary.

Storage:

- Store in tightly sealed containers in a cool, dry, and well-ventilated area. Avoid moisture and keep away from acidic and incompatible materials like aluminum.

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6. Exposure Controls/Personal Protection

Exposure Limits:

- OSHA PEL (TWA): 2 mg/m³
- ACGIH TLV (Ceiling): 2 mg/m³

Engineering Controls:

- Ensure adequate local exhaust ventilation to maintain airborne concentrations below permissible exposure limits.

Personal Protective Equipment (PPE):

- **Eye/Face Protection:** Use chemical splash goggles and a full-face shield.
- **Skin Protection:** Wear protective gloves (e.g., nitrile or neoprene).
- **Respiratory Protection:** If airborne levels exceed limits, use an approved respirator suitable for caustic dust or mist.
- **Body Protection:** Wear chemical-resistant clothing such as aprons or overalls to avoid prolonged contact.

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7. Physical and Chemical Properties

Appearance: White solid in the form of flakes, granules, or pellets
Odor: Odorless
Odor Threshold: Not applicable
pH: Strongly alkaline (approx. 13–14 in aqueous solutions)
Boiling Point: 1,388°C (2,530°F)
Melting Point: 323°C (613°F)
Flash Point: Not flammable
Density: 2.13 g/cm³
Solubility: Highly soluble in water; exothermic reaction when dissolved
Vapor Pressure: Negligible at ambient temperature
Viscosity: Not applicable

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8. Stability and Reactivity

Chemical Stability: Stable under proper storage and handling conditions.

Reactivity: Reacts violently with acids, releasing heat. Reacts with aluminum to generate hydrogen gas.

Hazardous Reactions: May corrode metals and cause exothermic reactions with water or acids.

Conditions to Avoid: Moisture, heat, and incompatible materials.

Hazardous Decomposition Products: None under normal conditions, but reactions with acid can produce toxic gases.

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9. Toxicological Information

Routes of Exposure:

- Skin and eye contact, inhalation, ingestion.

Acute Toxicity:

- LD50 (Oral, Rat): 325 mg/kg (estimated, due to corrosive properties).

Irritation/Corrosion:

- Causes severe burns and tissue damage to skin and eyes.

Chronic Effects:

- Repeated exposure can result in chronic damage to skin and respiratory tract.

Carcinogenicity:

- Not classified as carcinogenic by OSHA, IARC, or NTP.

Sensitization:

- Not observed to cause reactions upon repeat exposure.

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10. Disposal Considerations

Waste Treatment Methods:

- Neutralize with a dilute acid before disposal. Dispose of as hazardous waste, in compliance with local and national regulations. Avoid releasing into drains or sewer systems.

Contaminated Packaging:

- Rinse packaging thoroughly and dispose of according to local regulations for chemical containers.

Precautions:

- Prevent contamination of soil and waterways during disposal. Contact waste management professionals for further advice.